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OCT. 20, A. M.

THE Farm Cost SITUATION

BUREAU OF AGRICULTURAL ECONOMICS
UNITED STATES DEPARTMENT OF AGRICULTURE

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Approved by Outlook and Situation Board, October 13, 1947

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GENERAL SITUATION

Farm costs are at an unprecedented high level. They have been on the increase for several years and the prospect for next year is generally upward for most cost items. Since 1939 farmers' out-of-pocket operating expenses have risen from 9 to 25 percent a year. Total farm operating costs for the country as a whole were nearly 2.5 times greater in 1946 than in 1935-39. They mounted from an average of 5.2 billions in the prewar period 1935-39 to nearly 12.8 billions in 1946. These costs are estimated at 14.9 billions in 1947. Some further increase is expected in 1948.

(For Release October 20, a.m.)

Goods and services used in production: Prices paid by farmers and farm wage rates, United States

(Index numbers 1935-39 = 100)

Year	All commodities 1/	Farm machinery	Building material other than house	Equipment and supplies 2/	Feed	Fertilizer	Seed	Wage rates
1910	77	66	68	91	86	99	-	82
1911	81	66	70	90	99	99	-	83
1912	77	66	70	90	84	100	66	86
1913	80	66	68	90	99	102	63	88
1914	78	66	63	89	94	100	64	86
1915	82	68	69	95	93	112	77	87
1916	98	70	79	116	120	120	92	96
1917	119	80	93	141	170	137	96	119
1918	137	102	109	163	179	170	123	150
1919	151	105	128	162	195	182	181	175
1920	137	109	139	170	127	186	98	205
1921	111	105	105	137	90	156	86	131
1922	109	93	107	126	114	129	84	129
1923	111	97	109	123	124	126	92	144
1924	112	101	109	120	131	120	97	147
1925	116	101	111	126	131	129	111	149
1926	115	101	109	130	127	126	138	152
1927	113	101	108	127	128	121	127	152
1928	117	101	107	124	137	131	115	152
1929	116	100	107	123	134	130	119	153
1930	111	100	105	118	122	126	112	142
1931	97	99	94	104	86	115	98	110
1932	86	93	85	96	64	99	66	81
1933	85	91	87	93	71	96	61	72
1934	97	95	99	98	98	104	90	81
1935	100	96	97	97	105	102	99	88
1936	98	98	98	99	104	96	91	94
1937	107	101	105	102	121	102	124	107
1938	99	104	100	103	85	100	102	106
1939	96	101	100	99	85	100	84	105
1940	98	100	101	99	94	97	84	107
1941	103	103	109	104	101	100	80	131
1942	117	108	120	114	125	111	123	171
1943	128	111	128	121	150	120	156	224
1944	136	114	138	126	165	121	175	268
1945	137	116	141	128	163	121	181	297
1946	151	120	158	132	194	124	190	321
Jan.	138				165			307
Feb.	139				167		186	
Mar.	139	116	144	128	168		191	
Apr.	140				169	122	191	307
May	146				182		192	
June	150	118	151	129	191			
July	159				227			321
Aug.	161				231			
Sept.	157	121	156	133	214	127	189	
Oct.	159				210			321
Nov.	161				210			
Dec.	163	123	180	135	204			
1947								
Jan.	163				196			339
Feb.	169				192		229	
Mar.	176	128	218	138	212		239	
Apr.	179				219	136	240	337
May	178				215		239	
June	183	138	218	148	229			
July	184				235			343
Aug.	188				247			
Sept..	193				264			
Oct.								343
Nov.								
Dec.								

1/ Excluding wages.

2/ Based on prices paid by farmers for 16 items including binder twine, lead arsenate, milk pails, pitchforks, gasoline for autos and trucks, motor oil, and tires, and other similar items used on farms for production.

Note:- For a list of items included in this table see "Agricultural Prices" Bureau of Agricultural Economics, April 29, 1946.

It should be noted however that some cost items such as feed, seed and to some extent labor are represented in both farm income and farm expenses. Higher costs for feed to some farmers mean higher incomes to others. And farm production and farm product prices also have risen to unprecedented levels in the last few years. In 1946 farm production was the highest on record, about 26 percent higher than the 1935-39 pre-war average. Farm production in 1947 is slightly below that of 1946 mostly because of the smaller corn crop this year. The index of farm product prices in 1947 is expected to average nearly 160 percent above the 1935-39 average. This will be the highest on record and nearly 20 percent above the previous high of 1946. As a result gross farm income in 1947 is expected to exceed 34 billions. Gross farm income in 1946 was 28.9 billions; nearly 180 percent above the 1935-39 average.

Three harvest seasons have nearly passed since the close of the war and the adjustments from war to peace-time conditions have been much slower than the general public had thought they would be. Because of the continued need for farm products at relatively higher prices there is real opportunity for most farmers, despite the unprecedented high level of farm costs and the expected increase in these costs next year.

More efficient methods of production, plus improved practices, use of better varieties of seeds, optimum amounts of fertilizer, more careful insect and disease control, increased use of labor-saving equipment and more timely operations are among the practices which are available to the individual farmer for reducing costs and increasing returns. During the next year or two it will pay farmers well to select and cull livestock and pay the utmost attention to careful feeding. It will be profitable during the next year to make maximum substitutions of roughage and pasture for concentrate feeds. It will also pay to substitute high protein feeds for grains.

The short feed-grain crop in this country and the generally short crops in foreign countries plus the high demands for both food and fiber will make local adjustments more important than ever before. The total supply of concentrates available for feed and other purposes for the 1947-48 season is expected to be about 142 million tons compared with 163 million tons last year. This is a reduction of about 13 percent below a year ago. But this year there is the biggest hay supply per animal unit on record. Pastures and stalk fields also are good. It will be relatively more profitable to substitute hay and pasture for feed grains, and to make increased use of high protein concentrates some of which are cheaper than corn considering their feeding value. Farmers also will find it advantageous to cull livestock carefully and to avoid waste in feeding.

Poultrymen and dairymen in deficit feed areas will be particularly hard pressed. In mid September 1947 mixed dairy feed was $4.42 and laying mash was $5.25 per 100 pounds. These are about 12 and 15 percent higher respectively than a year ago, whereas feed grain prices received by farmers generally were nearly 40 percent higher than a year ago. Thus, the full rise in prices of feed grains has not yet been reflected fully in the prices of mixed feeds. Higher prices of mixed feeds can be expected during the first half of next year.

Farm wage rates in 1946 were 321 percent of the prewar average, and in 1947 have averaged about 8 percent higher than in 1946. Farm wage rates in 1948 probably will continue near this 1947 level. Farmers who depend chiefly on hired workers will have to plan carefully for their supplies of labor next year. Foreign workers will not be available for seasonal farm work under a government-financed transportation program in 1948, and some local labor shortages probably will occur.

More new machines probably will be available to farmers in 1948 than in any previous year. Production of farm machinery in 1947 exceeds the previous record output of 1946 and prospects are favorable for a continued high level of production in 1948. Producers of machinery are giving more attention to power and machinery requirements of small farms and new type farm tractors and machines of small size should be available in increased numbers in 1948.

Prices of new farm machinery and tractors are considerably higher than in prewar years. Prices of gasoline have increased by about 15 percent with greater increases in prices of distillate and diesel fuel. The combined average cost of using a tractor in 1946 was about 40 percent above prewar average. These costs are about 50 percent above prewar and are expected to continue at about this level in 1948.

Although prices of farm products have increased sharply in recent years prices of horses and mules have declined and in 1947 were considerably below the 1935-39 average. The competitive position of horse and mule power compared with mechanical power has been responsible for this decline. It also has been responsible for the decline in numbers of horses and mules. In recent years colt crops have been declining and exports of work animals have been increasing.

Although production of some seeds was considerably greater in 1947 than in 1946 average production for most seeds was below the 1941-45 average production. Dealers' stocks were also lower than in 1941-45. In view of the probable strong demand and the current production and stocks of seeds, prices paid for most seeds during the remainder of 1947 and the spring of 1948 probably will continue at high levels. Prices paid by farmers for seeds during 1947 were about 13 percent higher than those paid during 1946, but about 200 percent above the 1935-39 average.

Supplies of fertilizer for the year ending June 30, 1948 are expected to be from 5 to 10 percent higher than those of a year earlier and the largest on record. Farmers will pay higher prices for fertilizer during the first half of 1948 than they did during the first half of 1947, but the relationship between fertilizer prices and farm product prices during the next year should be favorable for continued increases in use of fertilizer.

Lumber production increased materially during the last year. Stocks at mills, wholesalers and retailers also have increased. Lumber production for 1947 is estimated at approximately 36.5 billion board feet compared with 36.1 billion for 1946 and 28.1 billion board feet for 1945. Total stocks at retail and wholesale yards and mills on January 1, 1947 were 6.8 billion board feet compared with 4.6 billion a year earlier. They had increased by 1.3 billion board feet (nearly one-fifth) from January 1, to April 1, 1947. Supplies of hard wood flooring, 2 x 4's,and 2 x 6's are tight and there is a tremendous backlog of millwork orders. Lumbering costs may be slightly higher next year because good timber is not quite as accessible as in previous years due to the large takeoff during the past few years. But supplies are probably such as to offset the influence of these higher costs and to hold prices in check.

Building materials other than lumber have also been produced in increasing quantities the past few years, but not in sufficient quantities to meet full demands. It is not expected, however, that the shortage of these items will prevent farmers from obtaining essential supplies.

Supplies of tin cans, wooden containers, paper, open mesh and cotton bags, insecticides and fungicides in general should be equal to or larger than last year and sufficient to meet demands. Prices of most of these items probably will not be far different in the early part of 1948 from those presently quoted.

Farm land values for the country as a whole are now almost double their prewar level and about 5 percent below the inflationary peak of 1920. Land rentals are more than double the prewar level and are higher than for any previous year. About one-third of all farms bought during 1946 were mortgaged for 50 percent or more of the sales price. This ratio has changed very little since 1943 despite a 40 percent increase in land values.

Large mortgage debts represent heavy fixed costs to the farm owner for interest and principal payments and high rentals represent heavy fixed costs to the tenant. These costs would become increasingly burdensome if net farm incomes and farm product prices decline.

Farm Labor

Farm wage rates in 1947 are the highest on record, averaging about 8 percent above 1946. But farm wages have risen only about one-half as much as prices of farm products during the past year. Farm wage rates in 1947 are about 345 percent of the 1935-39 average whereas prices of farm products probably will average about 260 percent of 1935-39. There has been some further increase in the farm labor supply during the year and farm employment is showing a moderate increase for the second straight year. Estimated production per farm worker this year is 33 percent above 1935-39 but slightly below the record level of 1945 and 1946 (see table 1).

Labor costs per unit of product are higher in 1947 than a year ago, owing to the rise in farm wage rates and decline in production per worker. However, the increase in gross farm income per unit of product has risen much faster than has the labor cost per unit of product.

The farm labor situation in 1948 is not likely to be greatly different from that in 1947. Farm wage rates are expected to continue near this year's level. There may be some further increase in the farm labor supply and a slight increase in farm employment. Farmers probably will pay the largest total wage bill of record next year. With favorable weather, production per worker in 1948 should match this year's level. On the average, labor costs per unit of farm product in the year ahead should bear about the same relationship to gross income per unit of product as in 1947.

Farmers who depend chiefly on hired workers will have to plan carefully for their supplies of labor next year. Foreign workers will not be available for seasonal farm work under a government-financed transportation program in 1948, and some local labor shortages will probably occur. Such labor shortages may be particularly noticeable in cases where weather conditions upset normal harvesting seasons.

In view of continued high farm wage rates and relatively scarce labor supplies, farm employers will need to emphasize improved labor relations and increased productivity of hired workers next year. This will be good business also over the longer period ahead because farm wage rates usually decline less rapidly than prices of farm products.

Table 1.- Farm wage rates and related data, United States, 1935-39 average and 1940-47 inclusive
(Index numbers 1935-39 = 100)

Period or year	Farm employment			Gross farm production 2/		Farm wage rates	Ratio farm wage rates to	
	Total 1/	Family 1/	Hired	Total	Per worker 3/		Production per worker	Gross farm income per worker
1935-39	100	100	100	100	100	100	100	100
1940	97	96	100	107	110	107	97	98
1941	95	94	99	111	117	131	112	94
1942	95	94	99	122	128	171	134	91
1943	94	94	94	119	127	224	176	95
1944	92	93	87	124	135	268	199	106
1945	90	92	82	123	137	297	217	110
1946	92	94	84	126	137	321	234	106
1947 4/	93	95	86	124	133	346	260	99

1/ Includes farm operators and members of their families working without wages.
2/ Includes value of farm-produced power of horses and mules.
3/ Based on total farm employment and total gross production.
4/ Preliminary.

Farm Power and Machinery

Production of farm machinery in 1947 is expected to exceed the previous record output of 1946 and prospects are favorable for a continued high level of production in 1948. Even with higher exports of farm machinery in 1947 more new machines are available to U. S. farmers in 1947 than in any previous year.

Use of mechanical power on farms on a large scale first became important in World War I. Then, as now, feed prices, wage rates, and farm incomes were at high levels, and domestic demand and exports of the products of our farms were at high levels. From 1920 to 1940 tractor numbers increased by more than 1,200,000. But the demand and production both had stepped up by 1940 and the increase in numbers of tractors on farms from 1940-47 was about the same as from 1920 to 1940, a period three times longer. Machinery is now better adapted to farm work than previously. Producers of farm machinery are now giving increased attention to the power and machinery requirements of small farms. New type farm tractors and machines of small size should be available in considerable numbers in 1948. Also, there has been an increased production of garden tractors. Production of garden tractors in prewar years usually accounted for less than 5 percent of our total tractor output, but in 1946 about one-third of the tractors sold for domestic use were of the garden type.

Number of tractors on farms January 1, 1947 was about 117 percent greater than the average of 1935-39. While tractor numbers were increasing horse and mule numbers declined from a prewar average of 15,750,000 in 1935 39 to 10,024,000 in 1947, a decline of 36 percent.

Conditions in recent years have furthered the advantage of mechanical power over horse and mule power in a number of ways. It costs more now to operate a tractor than in prewar years, but the increase has been much less than the increase in costs of keeping work animals. Prices of new tractors and tires are now about one-third above the 1935-39 average. Prices of gasoline have increased by about 15 percent with greater increases in prices of distillate and diesel fuel. Total costs per tractor in 1946 were about 40 percent above the prewar average, and in 1947 are about 50 percent higher.

The per head cost of keeping horses and mules in 1946 with farm feeds, labor, and other items valued at current rates was estimated at 83 percent above the prewar average. Costs in 1947 are about double the prewar costs per head.

Feed prices are important costs in keeping horses and mules. For the entire country it takes about 25 bushels each of corn and oats and about 2 tons of hay for each animal annually. Feed costs in 1947 based on current prices and on these quantities and kinds of feed were about 146 percent above the prewar costs (see table 2). Most other items of cost other than labor of keeping work animals have increased less, however, than have feed costs.

Notwithstanding the marked increase in prices of farm products, prices of horses and mules in 1947 are below the average of 1935-39, and many animals in condition for further farm work are being sold for slaughter. Exports of horses and mules in recent years have been at high levels, and the increasing slaughter and exports have contributed materially to the high rate of decline of horse and mule numbers.

Largely because of the competitive position of horse and mule power versus mechanical power in the years immediately ahead and the present low prices of horses and mules, the colt crop in 1946 was only one-third of the prewar average and less than one-eighth of the colt crops of World War I years. There were only 255,000 colts under one-year of age on farms January 1, 1947 compared with 744,000 for the 1935-39 average. The colt crop of 1947 is even smaller than the 1946 crop. Thus, the decline in horse and mule numbers which has been continuous since 1918 will continue for some years.

An important factor contributing to the increase in tractor numbers has been the shortage of farm laborers and the greatly increased farm wage rates. Most of our important labor-saving machines are operated largely with tractor power and the rate of increase of these machines since the prewar years has been even greater than for tractors.

Table 2.- Estimated cost of using farm tractors and of keeping horses and mules, United States, 1935-39 average and 1940-46

(1935-39 = 100)

Calendar year or period	Horses and mules, all ages			Number colts on farms under one year of age Jan. 1	Farm tractors			
	Number on farm Jan. 1	Value per head Jan. 1	Feed cost per head 1/		Number on farm Jan. 1	Prices paid by farmers for:		
						New tractors 2/	Gaso-line	Tires
1935-39	100	100	100	100	100	100	100	100
1940	92	90	94	101	124	94	95	91
1941	90	81	105	98	135	99	99	94
1942	87	78	133	85	152	104	103	117
1943	84	95	175	69	169	104	104	129
1944	80	98	192	62	178	107	104	135
1945	76	86	190	54	195	109	103	129
1946	70	80	221	41	208	122	106	131
1947	64	84	3/ 246	34	4/ 217	134	5/ 115	5/ 130

1/ Based on 25 bushels each of oats and corn and 2 tons of loose hay.
2/ Tractor prices are for medium size (20-29 DHP) wheel tractor equipped with rubber tires.
3/ Average of the first eight months.
4/ Preliminary estimates.
5/ Average prices paid in March and June.

Feed Costs

Feed grain costs are at record high levels. In September of this year the index of feed grain prices received by farmers was 24 percent above the record high point of June 1920 following World War I, and nearly three and one-half times the 1935-39 average. Further, the index has risen steadily over the past year. In September 1947, it was 77 percent above February and 40 percent above September 1946.

The general index of prices paid by farmers for feeds has been rising for several months and in September 1947 was about 30 percent higher than last winter, and about 25 percent higher than a year ago. The index of feed grain prices received by farmers probably more nearly represents the general level of feed grain costs in surplus feed areas than in deficit feed areas.

The average price paid by farmers for 100 pounds of mixed dairy feed in September 1947 was $4.42 compared with $3.62 in February 1947 and $3.94 in September 1946, and less than $2.00 before the war. The price of laying mash in September was $5.25 compared with $4.24 in February and $4.56 in September last year. The prices paid for mixed feeds in August has probably not yet fully reflected the rise in feed grain prices and a further rise in mixed feed prices can be expected.

Livestock and livestock product prices in September 1947 were only slightly above the 1946-47 fall and winter level while the index of feed grain and hay prices had risen about 35 percent. In the winter of 1946-47 the ratio of the index of livestock prices to the index of feed prices was about one-fifth higher than in 1935-39 but since then there has been a gradual decline and in September 1947 the index ratio was slightly over 80 percent of the prewar average (see table 3). Relative to conditions in 1935-39, this feeding ratio is unfavorable for feeding livestock.

The supply of concentrates available for feed and other purposes for the 1947-48 feeding period is expected to total about 142 million tons compared with 163 million tons a year ago. However the animal units to be fed are expected to total about 157 million compared with 161 a year earlier. Thus, the supply per animal unit is about 11 percent less than a year ago but still is about equal to the average for the past 10 years (see figure 1). The quality of the corn crop however is below average and it may take more feed per unit of product than in an average year. Supplies of byproduct feeds will be about as large as the record production of last year. During the coming feeding season high protein concentrates will constitute a larger than usual percentage of all concentrates fed. Hay supplies per animal unit are the highest on record but the general quality of hay may be lower than usual.

When livestock feed ratios are low farmers tend to feed less grain to the livestock they have and to reduce the number of livestock raised. A low hog corn price ratio in the fall is usually followed by a decrease in the sows farrowing the following spring. In general, a low ratio results in more careful feeding with the result that less feed is used per unit of product.

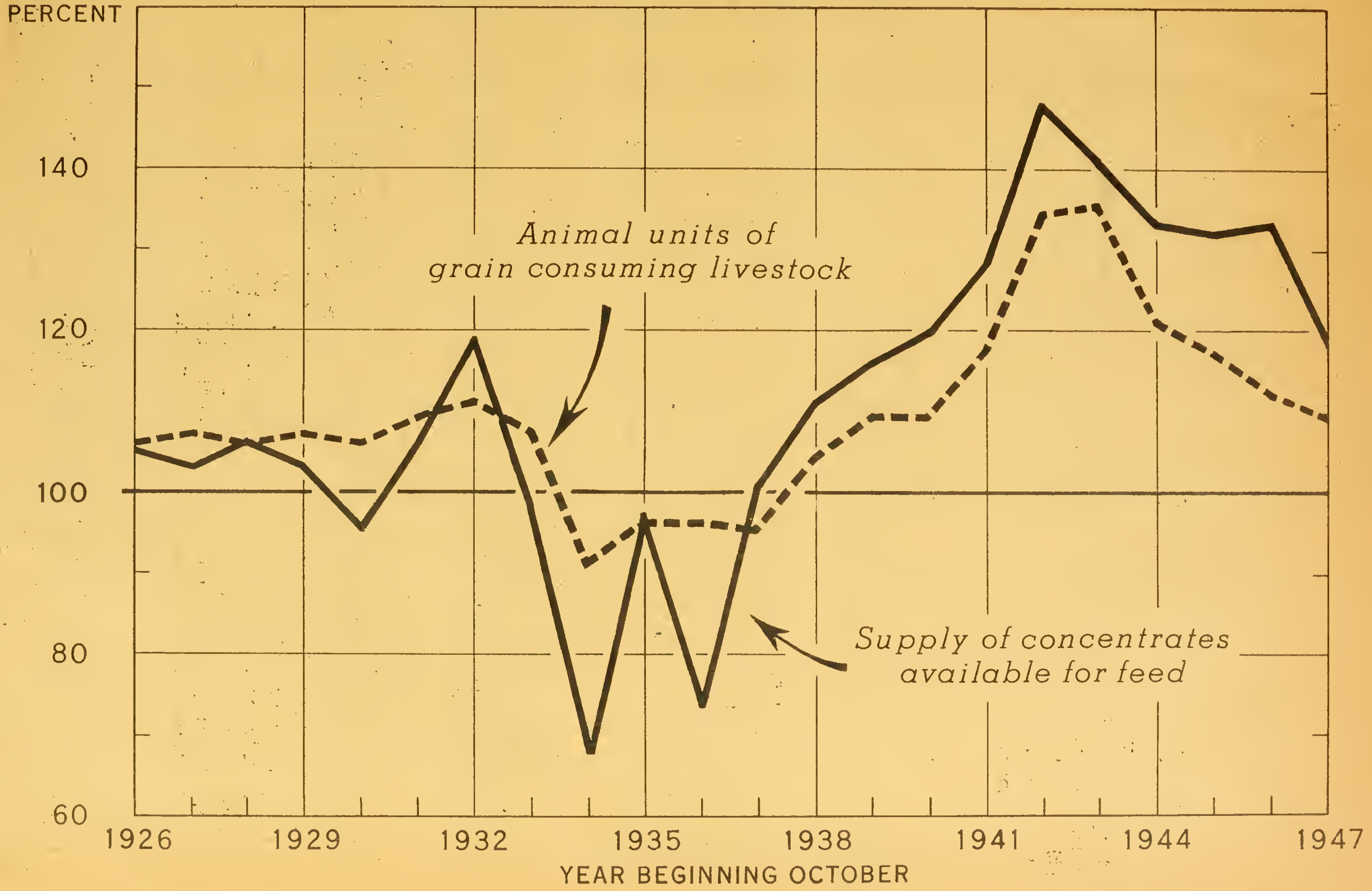
Table 3.- Prices of livestock and feed, 1927-47
(Index numbers 1935-39 = 100)

Year		Livestock and livestock product prices 1/	Feed grains and hay prices 1/	Ratio of livestock prices to feed prices
1927		127	121	105
1928		136	130	105
1929		138	126	110
1930		117	113	104
1931		85	78	109
1932		63	51	124
1933		62	60	103
1934		72	100	72
1935		98	113	87
1936		103	107	96
1937		109	132	83
1938		97	75	129
1939		93	73	127
1940		96	86	112
1941		120	94	128
1942		148	117	126
1943		172	155	111
1944		166	175	95
1945		174	170	102
1946		206	206	100
	Jan.	175	173	101
	Feb.	173	175	99
	Mar.	174	180	97
	Apr.	176	180	98
	May	178	198	90
	June	183	206	89
	July	212	257	82
	Aug.	225	237	95
	Sept.	214	233	92
	Oct.	256	234	109
	Nov.	252	197	128
	Dec.	252	196	129
1947	Jan.	241	194	124
	Feb.	238	195	122
	Mar.	250	224	112
	Apr.	242	235	103
	May	236	230	103
	June	238	253	94
	July	245	267	92
	Aug.	253	285	89
	Sept.	270	313	86

1/ Calendar year. The factors for converting index numbers from August 1909-July 1914 = 100 to 1935-39 = 100 are: livestock and livestock products, 116.6; feed grains and hay, 94.8.

RELATION OF CONCENTRATE FEED SUPPLY TO NUMBER OF GRAIN CONSUMING ANIMALS, UNITED STATES

INDEX NUMBERS (1935-39=100)



U. S. DEPARTMENT OF AGRICULTURE FIGURE 1. NEG. 46110 BUREAU OF AGRICULTURAL ECONOMICS

In general numbers of grain consuming livestock tend to adjust to the feed supply. The supply of concentrates has been larger in relation to the number of livestock since 1938, but more livestock product per animal has been produced.

Feed prices in general will continue high during the coming winter although not necessarily at the record levels recently attained and livestock feed ratios probably will continue less favorable than in the recent past. Farmers will find it to their advantage to avoid waste in feeding grain and to make increased use of high protein concentrates, some of which are cheaper than corn considering their feeding values. On some farms oats and barley will have to be substituted for corn to a greater extent than usual. This does not usually involve any particular difficulty except that for most livestock small grain should be ground. If the hay crop has been put up in good condition it will enable farmers to reduce the amount of grain fed and to carry their cattle, sheep and workstock through the winter with a minimum of grain. Fall pastures and stalk fields are generally good this year and will furnish much feed. There will probably be an unusually large amount of corn silage and corn fodder and stover because of the poor corn growing season. Part of the corn will be chaffy and late planted corn may be soft. The latter will have to be fed to hogs and cattle before it spoils in the spring. Thus, a variety of feeding problems will present themselves to livestock producers depending upon their different situations. Dairymen and poultry producers in deficit feed areas will be especially hard hit because of high feed prices and possibly actual feed shortages. There may be some liquidation of poultry flocks.

The present situation of low livestock feed ratios is probably temporary. It is mainly due to a poor corn crop and overseas demand for food grains. If an average yield of feed grains is obtained in 1948 the feed supply will be larger than our domestic livestock requirements and the livestock feed ratios will be reversed. Our livestock population has been decreasing and is low relatively to our ability to produce feed under average weather conditions. The supply of meat per capita in 1948 is expected to be 5 to 10 percent below 1947.

This is a year when close attention to balanced rations will pay high dividends. Substituting alfalfa meal and high protein feed for corn and some other grains in the general feeding program, particularly hogs and feeder cattle this fall will reduce costs and increase income. Closer than usual culling of poultry flocks and of dairy herds will also pay.

Maximum use of hay and forage in wintering beef cattle and in growing young dairy cattle will be followed by many farmers. Less grain will be used in fattening cattle for market. Fewer "finished" cattle will be coming to market next spring and summer. Hogs will be lighter in weight except in a few areas where large quantities of soft corn may have to be fed rather soon in order to utilize it before it spoils. The greatest pinch in feed supplies will come next spring and summer. Plans should be laid to make the maximum use of pasture by all kinds of livestock and poultry next spring and summer. Careful attention to good feeding practices in the months ahead will result in lower costs as well as saving grain.

Seeds

Prices paid by farmers for seeds during 1947 were about 13 percent higher than in 1946, but over 200 percent higher than the average for the prewar period 1935-39. In view of probable continued strength in demand and because of limited current production and stocks of seeds, prices paid during the remainder of 1947 and the spring of 1948 will probably continue at relatively high levels for most seeds.

Production of 12 principal legume and grass seeds in 1947 was about 6 percent below that of 1946, but only 2 percent below the 1941-45 average. The production of principal cover crop seeds (Austrian winter peas, all vetches, common rye grass, and crimson clover) was about 2 percent lower in 1947 than in 1946, but 18 percent larger than the average production of 1941-45. The production of Kentucky bluegrass in 1947 was about three times the extremely short crop of 1946 and about one-fifth larger than the annual average for the 5-year period 1941-45. The 1946 crop was the smallest since 1934. Total production of Kentucky bluegrass, orchard grass, timothy and red top this year was about 20 percent above that of 1946, and slightly above the 1941-45 average. Stocks of 34 legume, grass and cover crop seeds in the hands of dealers on June 30, 1947 were 23 percent smaller than a year ago and 44 percent below the 1941-45 average. Thus, even more than a year ago, demand will fall more heavily than usual on the current year's production.

Fertilizer

Farmers paid from 10 to 12 percent more per ton for fertilizer during 1947 than they paid in 1946 and slightly higher prices may be expected in the first half of 1948. But prices received by farmers had risen by 23 percent during the first nine months of 1947 over 1946 so that the ratio of farm product prices to prices paid for fertilizer was slightly higher than a year ago. Further increases that have occurred in prices of fertilizer materials since last spring probably will result in higher prices to farmers for fertilizer. But the relationship between fertilizer prices and farm product prices during the next year will be favorable for continued increases in fertilizer consumption.

Record breaking supplies of fertilizer were available for use on the 1947 crop. Supplies for the year ending June 30, 1948 are expected to be from 5 to 10 percent above those of the previous year. The greatest increase in the supply of fertilizer nitrogen will be in liquid forms which are used largely for producing ammoniated superphosphates; some is used for direct application to certain crops. Supplies of solid nitrogen materials may be increased only slightly during the year. Several new phosphate plants have been built and others have been expanded. Some expansion of potash plants has occurred and greater efficiency in production is being obtained. It is also expected that imports of potash will be increased. All of these developments should make possible the production of higher grade mixed fertilizers than have been available generally in previous years.

Lumber, Containsers and Farm Supplies

Farmers and people in general have been anxiously watching the trend and general level of production, stocks and prices of lumber, building materials and related items; in the hope that these items would be available soon in sufficient quantity for their pent up needs. Plan after plan is ready to be put into effect as soon as some of the more critical items in the builders list become available in adequate quantities.

The general farm building supply situation, particularly for lumber, has been improving for sometime and supplies for most items look fairly promising for 1948. Farmers lumber supplies come mostly through retail yards. There are some exceptions such as the South where some farm lumber supplies come directly from the mill to the farm. On January 1, 1940 retail lumber stocks were about 5.9 billion board feet; about normal volume. By January 1, 1945 they had been reduced to 2.3 billion board feet and the following year to 1.3 billion board feet. Furthermore, normal distribution was upset to the extent that many retailers had practically nothing. On the average there was about enough lumber in each retail yard, assuming equal distribution, June 30, 1946 to supply lumber for the construction of less than 3 average homes; far too little.

By January 1, 1947 retail stocks had climbed to 2.1 billion board feet and had increased to about 3 billion by last April. Total stocks at retail and wholesale yards and mills showed similar increases. January 1 stocks were about 6.5 billion in 1945; 4.6 billion in 1946 and 6.8 billion in 1947. By April 1, they had increased by 8.1 billion, or nearly one-fifth.

Lumber production likewise has improved and is near a record. Production in 1946 was about 36.1 billion board feet compared with 28.1 billion in 1945. Estimates for 1947 are about 36.5 billion board feet; equal to the record production of 1941. Lumber production in 1948 may be down slightly. Raw material supplies are sagging slightly and timber is not quite as accessible due to large take off the past few years. This means higher logging costs.

Hard wood production, except flooring, has been up the last few years and supplies are adequate to meet needs. Supplies of hardwood flooring, 2 x 4's, and 2 x 6's are tight and prices are well above (more than double) prewar prices. There is also a tremendous backlog of millwork orders and many firms are reluctant to accept additional contracts.

Although production of barbed and woven wire, fencing, nails, staples, bale ties, galvanized roofing and siding, wire netting, and pipe and related items has been at a high rate during 1947 the supply of most merchant trade products has not fully met demands. However, the supply has been better than at any time since the beginning of the war. Pipe, because of the extraordinary demands for housing and other construction and increased industrial uses, has been in the tightest supply. Distribution has also aggravated the situation in some areas. Although production of bale ties and nails is at an exceptionally high rate, demands continue to exceed manufacturers' ability to produce.

If additional U. S. government loans and aid are made to western Europe the demand for some building materials and supplies probably will be increased. However this probably would not cause any material shortages of lumber, containers, or farm supplies that would affect agricultural production. It is not expected that a shortage of supplies of these items will prevent farmers from meeting essential needs.

Imports of burlap for bags this fall and next spring are expected to be somewhat higher than for the same period last year, and the supply should be adequate. Supplies of tin cans, wooden containers, paper, open mesh and cotton bags, should be equal to or larger than last year and sufficient to meet demands.

Insecticides and Fungicides

Prices of materials used for control of insects and of plant diseases have continued to rise during 1947. They averaged about 20 percent higher in 1947 than in 1946. The 1946 prices were only about 3 percent above those of 1945. A slight increase in prices of these materials is expected in 1948. DDT is one striking exception. The price of DDT was about 15 percent lower in 1947 than in 1946.

There has been considerable variation in the recent price increases of these products as some products have been in relatively shorter supply. Price increases in 1947 of two important materials used in insect control varied from one-eighth to one-fourth. Some manufacturers of insecticides from plant sources are attempting to reduce prices of their products to improve their competitive position with producers of synthetic products.

It appears that for 1948 nicotine compounds will continue in short supply and will not be adequate to meet all of the needs for 1948. Other insecticides from plant sources, such as rotenone and pyrethrum, are expected to be available in sufficient quantities to meet the needs during 1948.

The supply of arsenicals, particularly lead arsenate and calcium arsenate, probably will be sufficient to meet the needs in 1948. The newer insecticides, such as DDT, chlordane, benzene hexachloride, chlorinated camphene, should be available in 1948 in amount fully adequate to meet estimated needs. Ample supplies of insecticides which contain fluorine, such as cryolite, sodium fluoride, sodium fluosilicate will be available for 1948. By 1948, materials such as naphthalene, paradichloro-benzene, etc., should be reasonably in balance with the needs. Sulphur, dust diluents, and oils used as insecticides or as carriers also should be available in adequate quantities. Newer soil fumigants and fungicides are expected to be generally available.

Some difficulty was experienced in 1947 in obtaining adequate supplies of raw materials for the manufacture of insecticides and fungicides, and in getting desirable distribution, because of shortages of transportation facilities and containers. Some of these factors may continue to affect the supply of certain of these materials in 1948. In general, however, the insecticide and fungicide industry has the capacity and the facilities for making and distributing most of the materials that may be required in 1948.

Land Values and Rentals

Farm land values and rentals are expected to continue at high levels during the coming year. Land rentals in 1946 were more than double the prewar level and higher than for any previous year. With current farm product prices and incomes at new record levels, rentals for 1947 have increased further. Land rentals usually lag behind farm prices and farm incomes. When farm incomes rise, land rentals rise and when prices and incomes fall, rentals also fall; but they rise and fall a year or two after incomes and prices. Therefore, the present high rent level is likely to continue into the coming year. High rentals mean higher costs for tenants. Also important are the longer-run fixed costs of many owner-operators who buy land at inflated prices. Debt obligations on land purchased at inflated prices may prove burdensome when farm product prices and incomes decline.

Farm land values have been increasing steadily since 1941 and are now almost double their prewar level. During the year ended July 1, 1947 the increase was 10 percent, bringing the United States index (1912-14 = 100) to 162, 95 percent above the 1935-39 average and only 5 percent below the 1920 inflationary peak (see table 4). Average values in all except the two North Central geographic divisions are practically at or above the 1920 level. Land values for the country as a whole increased 2 percent during the 4 months from March 1 to July 1, 1947, as further sharp increases in land values in the wheat and range livestock areas more than offset a slight falling off in values in the Southeast. If the currently high prices for farm products continue throughout most of next year, land values for the country as a whole will likely rise further and reach a level higher than following World War I. In some areas there has been evidence of strong buyer resistence to increasing land prices, but a large volume of sales was reported last year.

The present farm mortgage debt of about 5 billion dollars is not burdensome when considered in the light of current price and income levels. On January 1, 1947 the debt was only about one-fifth as great as the cash receipts from marketings. Following World War I, mortgage debt was about 100 percent of annual cash income.

However, many of the recent land buyers have incurred heavy debts. About one-seventh of all farms bought during 1946 were mortgaged for 75 percent or more of the sales price and about one-third had debts totaling 50 percent or more. These ratios have changed very little since 1943, despite a 40 percent increase in land values. Properties that had a debt of 53 percent or more of the July 1 average sales prices were actually mortgaged for as much as the full value of similar properties in 1941.

Large mortgage-debts represent heavy fixed costs for interest and principal payments. These would become increasingly burdensome with a decline in net farm incomes and farm product prices. A readjustment of the mortgage obligation and of these costs can usually be arranged for only after substantial principal repayments have been made.

If prices and incomes should drop sharply, tenants who have contracted to pay high cash rents may also find their fixed costs to be excessive. To avoid these difficulties, cash leases might be made with provision for adjustment of rental payments in line with prices of the principal products produced.

Table 4.- Farm real estate: Index numbers of estimated average value per acre by geographic divisions, 1920 and 1947, with selected comparisons 1/

Geographic divisions	Index numbers 1912-14 = 100			Increase			Ratio
	1920	1947 March	1947 July	1915 to 1920	1941 to 1947	July 1946 to July 1947	July 1947 to 1920
				Percent	Percent	Percent	Percent
New England	140	152	154	41	44	8	110
Middle Atlantic	136	144	145	36	59	8	107
East North Central	161	152	152	55	90	10	96
West North Central	184	119	123	75	89	12	67
South Atlantic	198	217	215	102	95	9	109
East South Central	199	246	243	101	111	11	122
West South Central	177	170	176	77	78	11	99
Mountain	151	149	154	54	97	11	102
Pacific	156	215	216	46	98	6	138
United States	170	159	162	65	91	10	95

1/ Farm land with improvements as of March 1, except where otherwise indicated.

Interest, Taxes, and Insurance

Interest - Interest charges paid by farmers on their farm-mortgage debt during 1946 turned upward for the first time in nearly a quarter century. These costs appeared to move even higher in the first half of 1947. A higher farm-mortgage debt and a larger proportion of the debt owad to higher interest rate lenders were largely responsible for this trend. A continued increase in the farm-mortgage debt can be expected during 1947, if transfers of farms remain high, and if farmers increase further their expenditures for machinery and improvements. Many of these expenditures are made from borrowed funds or from savings which otherwise would be used to repay debts. The volume of new loans made has expanded materially, particularly those made by higher rate lenders. This has resulted in a higher average interest rate paid even though the interest rates charged by individual lenders have tended to remain relatively stable or to decline slightly.

Interest obligations on short-term or non-real-estate agricultural loans are on the increase because a greater volume of loans is being made. As of July 1, 1947 short-term farm loans held by the principal lending institutions amounted to 2,398 million dollars as compared with 2,094 million a year earlier; an increase of nearly 15 percent. These figures do not include loans made or guaranteed by the Commodity Credit Corporation. There is no indication of any material change in the rates of interest. The total interest charges on this non-real-estate debt were 12 percent greater in 1946 than in 1945. Because of increased borrowing, it is expected that interest charges for 1947 will be about 15 percent more than for 1946.

Taxes - Farm-property-tax levies in 1946, payable largely late in 1946 and early in 1947, averaged about 12 percent higher than those of 1945. This is a slightly greater increase than took place the previous year. Property taxes have been moving upward in response to the postwar demand for increased services from State and local governments and the rising costs of providing such services. However, in 1947 general retail sales taxes were adopted by four additional States, and a number of States have increased gasoline and excise taxes. Thus it is expected that the course of property-tax levies in the next few years also will be influenced by the extent to which other taxes are used to finance increased expenditures.

Insurance - Although fire (and lightning) insurance on farm property is usually for about 75 percent of the value of the property at the time the insurance is written, insured farm property is presently covered for only about 60 percent of its value. Property values have increased faster than the amounts of insurance carried on such property.

The total insurance costs of farmers have probably increased as much as 10 percent, due to new policies and additional insurance obtained against fire, lightning, and windstorm, and especially to the record-high purchase of hail insurance on growing crops. The latter type of coverage is most popular when good crops and high prices are in prospect.

Over-all fire insurance costs have increased, but due to an increased volume of insurance, there has been a slight down-trend in costs per $100 of insurance of farm-mutual companies in recent years and an up-trend in the reserves of these companies. Any down-trend in values which might occur sometime in the future would no doubt be accompanied by higher losses for insurance companies; but over-insurance probably is not as prevalent today as it was in the 1930's. Moreover, the companies are in a better position now than then to meet higher losses without increasing their assessment charges against the farmer.

Although interest charges on debt obligations, taxes and insurance costs represent a relatively small proportion of the farmers total costs they represent fixed costs which might prove burdensome in periods of declining prices and when farm production is reduced either voluntarily or through crop failure. The general trend in these costs has been upward for several years. These costs lag behind many other costs and prices when a general decline sets in.

Costs and Returns on Family-Operated Farms

Under present conditions of high level cost rates cost-reduction is the most promising only means of maintaining or increasing income to the individual farmer. This is especially true should farm product prices decline.

Individually, farmers can influence their net farm returns very greatly by cutting down the cost per unit of product marketed. This can be done by direct reduction in cost or indirectly by increasing the output per man and per farm. Generally the individual farmer has little or no direct control over cost rates. He must look for improved methods of production and to greater total output as a means of reducing the amount of cost goods used per unit of output. More efficient methods of production, improved practices, using better varieties of seeds, optimum amounts of fertilizer, more careful insect and disease control, increased use of labor-saving equipment, more timely operations, close selection and culling of livestock and careful feeding are among the practices which are available to individual farmers for increasing returns or reducing costs and will pay big dividends in the years ahead; particularly next year.

Most of these cost reducing processes are applicable to both big farms and small farms. Manufacturers of tractors and farm equipment are placing more emphasis than ever before on the production of items adaptable to use on small farms.

Tables 5 and 6 show the results of operations and the adjustments which have taken place during the past 17 years, 1930-1946, on 14 different types of farms. Each of these farms is representative in its size, production, operations and various aspects of the rank and file of farms of that type in the designated area. The 17 years covered by these statistics include a general depression, two severe drouths, and a World War and should characterize the "ups" and "downs" in farming in general. A 15-year base period (1930-44) is used here to avoid unduly emphasizing these three situations.

Total production generally increased over the 17-year period on all farms. The big increase came during the war when production was needed most. The greatest increase came generally on crop farms. Weather was generally favorable to production during the war years, but the increased production came mainly because farmers were able quickly to take advantage of many technological developments and improved practices adopted in the inter-war period. Even on the livestock farms, production increased by 15 to 30 percent during the war period (see central New York, southern Wisconsin dairy farms and Corn Belt hog-dairy farms). Acres and livestock per farm also increased and thus contributed to greater total output per farm.

Although milking machines and some other labor-saving equipment are used generally on livestock farms, livestock farmers have not had extensive labor-saving machinery and equipment available to them in the same degree as wheat, corn and general crop farmers. This means that the intensive labor using livestock enterprises are somewhat handicapped, particularly when wage rates are high. Central New York dairy farmers, for example, increased their total farm output by 28 percent from 1930-32 to 1944-46, and used 9 percent more total labor in 1944-46 than in 1930-32. Winter wheat farmers, on the other hand, increased total production during this period by 51 percent with no increase in labor. Cash grain farmers in the Corn Belt increased total production by 54 percent during this period and used 12 percent less labor.

The Corn Belt farmers and the wheat farmers particularly resorted to increased use of mechanical power and other labor-saving devices which permitted them to increase the size of their farm units and to further increase production per man and per farm. The use of hybrid seed corn and generally better varieties of other seeds also helped to increase output on these farms and to lower the general level of per unit costs.

Table 5.- Total production and operating expense per dollar of gross farm income, family-operated farms, by type, 1930-46

Calendar year	Dairy farms		Corn Belt farms				Spring wheat farms (Northern Plains)			Winter wheat farms (Southern Plains)		Cotton farms		
	Central New York	Southern Wisconsin	Cash grain	Hog-beef fattening	Hog-beef raising	Hog-dairy	Wheat-corn-livestock	Wheat-small grain-livestock	Wheat-roughage-livestock	Wheat	Wheat-grain sorghums	Southern Plains	Black Prairie	Delta of Mississippi
	Total production Index numbers (1930-44 = 100)													
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
1930	91	98	75	89	90	93	121	118	128	143	115	67	94	72
1931	102	83	88	86	102	98	98	58	95	158	181	100	126	99
1932	85	96	105	101	108	102	107	106	148	99	78	124	104	75
1933	83	86	71	85	92	86	62	74	66	87	45	106	98	78
1934	92	79	55	54	59	77	52	37	52	49	53	44	74	79
1935	99	98	98	89	103	94	86	91	88	39	37	89	89	82
1936	67	85	67	110	60	82	40	30	30	63	42	68	95	109
1937	99	100	121	99	107	100	76	95	62	47	57	135	124	142
1938	110	100	109	93	98	100	92	91	62	79	67	96	98	103
1939	97	94	109	88	94	104	109	77	82	43	62	77	108	107
1940	106	111	100	98	107	107	98	95	95	70	80	96	111	93
1941	103	103	114	105	108	105	127	144	125	151	136	128	85	105
1942	118	123	130	124	127	117	162	164	171	166	195	130	94	122
1943	109	119	130	138	120	121	121	159	136	127	125	113	104	114
1944	119	125	128	141	125	114	149	161	160	179	227	127	96	120
1945	118	125	135	142	143	130	154	174	179	217	139	81	91	123
1946 1/	117	116	149	155	144	129	140	157	156	208	155	81	74	109
	Operating expense per dollar of gross farm income													
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
1930	.58	.48	.56	.57	.60	.52	.58	.75	.69	.48	.59	.56	.48	.46
1931	.55	.71	.82	.80	.74	.66	.89	1.47	1.12	.69	.59	.57	.55	.39
1932	.69	.65	.85	.70	.71	.70	.89	1.14	.78	1.02	1.16	.48	.55	.40
1933	.63	.64	.48	.70	.59	.63	.72	.59	.69	.59	.65	.37	.39	.30
1934	.61	.63	.49	1.06	.97	.59	1.18	1.11	1.22	.67	.56	.66	.33	.20
1935	.49	.40	.33	.39	.35	.31	.39	.45	.43	.51	.53	.33	.32	.21
1936	.55	.48	.34	.60	.60	.42	.82	1.14	1.74	.43	.45	.43	.32	.19
1937	.61	.44	.34	.42	.38	.41	.47	.40	.65	.62	.44	.38	.40	.27
1938	.53	.49	.40	.44	.41	.46	.48	.58	.57	.52	.53	.37	.40	.24
1939	.60	.54	.35	.48	.43	.48	.38	.47	.45	.64	.43	.38	.34	.22
1940	.55	.46	.34	.39	.35	.45	.41	.45	.42	.50	.44	.37	.36	.21
1941	.52	.38	.25	.30	.28	.35	.26	.28	.27	.23	.25	.27	.30	.15
1942	.48	.33	.21	.23	.23	.31	.21	.25	.24	.19	.18	.30	.33	.16
1943	.48	.34	.22	.29	.28	.35	.28	.24	.29	.23	.22	.32	.32	.16
1944	.46	.33	.24	.31	.31	.41	.23	.24	.28	.20	.15	.31	.38	.18
1945	.44	.35	.23	.30	.25	.35	.21	.21	.25	.14	.21	.35	.38	.17
1946 1/	.43	.30	.17	.21	.19	.28	.17	.18	.19	.12	.17	.31	.32	.15

1/ Preliminary.

Table 6.- Total costs per unit of production and operator's net farm income, family-operated farms, by type, 1930-46
(index numbers 1930-44 = 100)

Calendar year	Dairy farms		Corn Belt farms				Spring wheat farms (Northern Plains)			Winter wheat farms (Southern Plains)		Cotton farms		
	Central New York	Southern Wisconsin	Cash grain	Hog-beef fattening	Hog-beef raising	Hog-dairy	Wheat-corn-livestock	Wheat-small grain-livestock	Wheat-roughage-livestock	Wheat	Wheat-grain sorghum	Southern Plains	Black Prairie	Delta of Mississippi
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
	Total costs per unit of production													
1930	127	121	145	133	127	119	100	89	89	77	89	128	112	133
1931	95	118	94	104	89	90	90	123	91	54	47	70	65	69
1932	86	83	58	66	60	63	64	54	46	67	77	50	61	68
1933	82	82	77	71	63	67	92	79	96	69	119	67	74	78
1934	82	95	108	117	115	89	127	154	111	132	111	148	103	91
1935	81	82	84	92	83	84	80	69	76	167	158	85	90	88
1936	94	100	113	74	130	102	165	200	251	108	145	106	94	90
1937	96	95	86	96	89	98	101	83	100	144	115	72	80	77
1938	84	91	78	93	88	90	82	74	96	89	96	84	79	87
1939	92	95	84	101	92	89	74	90	81	153	107	95	79	87
1940	88	82	91	92	84	90	83	77	76	101	89	90	80	96
1941	101	100	99	100	97	105	81	71	71	61	68	94	120	116
1942	109	101	110	107	104	114	88	89	75	74	70	107	127	126
1943	135	123	132	124	136	139	141	119	121	111	118	143	155	153
1944	148	132	141	130	143	161	132	129	120	93	91	161	181	141
1945	148	141	143	138	139	156	141	128	116	91	125	187	205	144
1946 1/	165	161	155	142	150	170	160	146	134	104	129	209	267	181
	Operator's net farm income 2/													
1930	90	83	29	36	34	66	49	20	35	64	28	32	61	34
1931	77	20	-7	-4	9	27	1	-21	-15	17	25	31	44	39
1932	35	22	-5	7	11	18	-1	-13	13	-15	-17	40	34	26
1933	44	25	41	6	25	23	12	35	20	26	14	67	66	44
1934	57	30	37	20	-6	33	-15	-6	-14	12	24	8	75	70
1935	86	93	75	127	116	120	72	71	74	40	32	83	91	71
1936	75	70	88	30	30	80	6	-2	-24	62	43	49	104	112
1937	78	96	77	99	93	97	58	86	45	25	52	103	95	98
1938	83	74	66	77	84	82	62	44	48	42	37	79	76	79
1939	68	59	84	61	74	69	92	67	74	22	57	75	101	89
1940	92	88	90	88	105	84	80	74	90	48	56	90	101	81
1941	119	138	173	171	180	155	205	196	207	213	165	192	135	156
1942	172	208	252	292	278	228	314	270	315	319	297	220	158	198
1943	187	235	269	252	243	229	247	336	278	265	249	196	196	199
1944	237	259	231	238	224	189	318	343	354	360	438	235	163	204
1945	255	274	273	286	334	276	393	421	456	554	293	150	179	223
1946 1/	286	351	419	494	501	389	526	565	609	722	429	206	240	255

1/ Preliminary.

2/ Net farm income minus rent and interest paid by the farm operator. This is what the farm operator and his family get for the use of their labor, capital, and land after paying current production expenses, rent and interest on the mortgage debt and taking account of inventory changes.

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Some farmers have been able, through various means to hold per unit costs in check despite substantial increases in cost rates. The index of total cost per unit of production in 1944-46 on central New York and southern Wisconsin dairy farms averaged about 150 percent compared with about 105 percent on Southern Plains wheat and wheat-grain sorghum farms; both indexes based on 1930-44 = 100. The index of prices paid for goods and services used in production averaged about 150 in 1944-46 on these dairy farms and 120 on Southern Plains wheat farms. However, it should be pointed out that feed costs and wage rates rose relatively higher than did the cost rates of most other items used in farm production. Therefore, any measures then as now, which tended to reduce the amount of hired labor and purchased feed lowered per unit costs to that extent. Hired labor and purchased feed are still two of the high cost elements in production costs and the individual farmer can hold unit costs in check by substituting good quality hay, pasture, and other forages to a maximum for purchased concentrates and by resorting to the extensive use of labor-saving devices.

Another way of measuring the relative positions of these farm operators in reducing costs and in increasing net returns is to ascertain the amount of each dollar of gross farm income that is required to meet operating expenses. The results from this calculation for the 17-year period on all farms are given in table 5. In the 5-year period 1942-46 about 18 cents out of each dollar of gross farm income on Southern Plains wheat farms want to pay operating expenses compared with 46 cents on central New York dairy farms and 35 cents on southern Wisconsin dairy farms.

The index of operator's net farm income (see footnote, table 5) in 1942-46 for Southern Plains wheat farmers averaged about 390, for Corn Belt farmers 295, and for southern Wisconsin and Central New York dairy farmers 245, all based on 1930-44 = 100. There is much less variation in most production and income items on dairy farms than on most other farms, particularly crop farms where annual precipitation is light and varied and the effects of highly variable rainfall and crop yields are particularly noticeable on the wheat farms.